

**IN THE CLAIMS:**

1           1.       (Original) An RF passive circuit comprising:  
2                   a semiconductor substrate;  
3                   a spiral inductor which is formed on a main surface of the semiconductor  
4 substrate;  
5                   a via-hole which is formed at a position adjacent to the spiral inductor by applying  
6 a metal film on an inside wall of a hole provided through the semiconductor substrate;  
7                   a dielectric layer which is formed on the metal film; and  
8                   a wiring metal layer which is formed on the dielectric layer and holds a capacitor  
9 between the via-hole;  
10                  wherein one end of the spiral inductor extends to be connected with the wiring  
11 metal layer.

1           2.       (Original) The RF passive circuit of Claim 1,  
2                   wherein the spiral inductor has a double layer structure having an upper wiring  
3 metal layer and a lower wiring metal layer, where at least one of the wiring metal layers is in a  
4 spiral pattern, and where the wiring metal layers are connected to each other, with a contact hole  
5 therebetween.

1           3.       (Original) An RF choke used in at least one of a matching circuit and a bias  
2 feeding circuit, both circuits being included in an RF amplifier, the RF choke comprising:  
3                   a semiconductor substrate where at least one of the matching circuit and the bias  
4 feeding is circuit incorporated;

5 a spiral inductor which is formed on a main surface of the semiconductor  
6 substrate;

7 a via-hole which is formed at a position adjacent to the spiral inductor by applying  
8 a metal film on an inside wall of a hole provided through the semiconductor substrate;

9 a dielectric layer which is formed on the metal film; and

10 a wiring metal layer which is formed on the dielectric layer and holds a capacitor  
11 between the via-hole,

12 wherein one end of the spiral inductor extends to be connected with the wiring  
13 metal layer.

1 4. (Original) An RF passive circuit comprising:

2 a semiconductor substrate;

3 a spiral inductor which is formed on a main surface of the semiconductor  
4 substrate;

5 a via-hole which is formed at a position adjacent to the spiral inductor by applying  
6 a metal film on an inside wall of a hole provided through the semiconductor a substrate;

7 a first wiring metal layer which is formed on a first dielectric layer and  
8 equivalently forms a first capacity element between the via-hole; and

9 a second wiring metal layer which is formed on the first wiring metal layer with a  
10 second dielectric layer therebetween, and equivalently forms a second capacity element between  
11 the first wiring metal layer,

12                wherein the via-hole and the second wiring metal layer are electrically connected  
13   to be able to hold a static capacity determined by a sum of the first capacity element and the  
14   second capacity element,  
15                and wherein one end of the spiral inductor further extends so as to be electrically  
16   connected to the first wiring metal layer.

1            5.        (Original) The RF passive circuit of Claim 4,  
2                wherein the spiral inductor has a double layer structure having an upper wiring  
3   metal layer and a lower wiring metal layer, where at least one of the wiring metal layers is in a  
4   spiral pattern, and where the wiring metal layers are connected to each other, with a contact hole  
5   therebetween.

1            6.        (Original) An RF choke used in at least one of a matching circuit and a bias  
2   feeding circuit, both circuits being included in an RF amplifier, the RF choke comprising:  
3                a semiconductor substrate where at least one of the matching circuit and the bias  
4   feeding circuit is incorporated;  
5                a spiral inductor which is formed on a main surface of the semiconductor  
6   substrate;  
7                a via-hole which is formed at a position adjacent to the spiral inductor by applying  
8   a metal film on an inside wall of a hole provided through the semiconductor a substrate;  
9                a first wiring metal layer which is formed on a first dielectric layer and  
10   equivalently forms a first capacity element between the via-hole; and

11 a second wiring metal layer which is formed on the first wiring metal layer with a  
12 second dielectric layer therebetween, and equivalently forms a second capacity element between  
13 the first wiring metal layer,

14 wherein the via-hole and the second wiring metal layer are electrically connected  
15 to be able to hold a static capacity determined by a sum of the first capacity element and the  
16 second capacity element,

17 and wherein one end of the spiral inductor further extends so as to be electrically  
18 connected to the first wiring metal layer.

1 7-9. Cancelled.

1 10. (Original) An RF passive circuit comprising:

2 a semiconductor substrate;

3 a via-hole which is formed by applying a metal film on an inside wall of a hole  
4 provided through the semiconductor substrate;

5 a dielectric layer which is formed on a main surface of the semiconductor  
6 substrate so as to cover the metal film; and

7 an inductor which is a spirally-formed metal layer formed on the dielectric layer,  
8 which forms a static capacity where one part thereof faces the metal film of the via-hole.

1 11. (Original) An RF choke used in at least one of a matching circuit and a bias  
2 feeding circuit, both circuits being included in an RF amplifier, the RF choke comprising:

3 a semiconductor substrate where at least one of the matching circuit and the bias  
4 feeding circuit is incorporated;

5           a via-hole which is formed by applying a metal film on an inside wall of a hole  
6 provided through the semiconductor substrate;  
7           a dielectric layer which is formed on a main surface of the semiconductor  
8 substrate so as to cover the metal film; and  
9           an inductor which is a spirally-formed metal layer formed on the dielectric layer,  
10 which forms a static capacity where one part thereof faces the metal film of the via-hole.

1           12.   (Original) An RF passive circuit comprising:

2           a semiconductor substrate;

3           a dielectric layer which is formed on a first main surface of the semiconductor  
4 substrate;

5           a via-hole which is formed by applying a metal film on an inside wall of a hole  
6 provided through a second main surface of the semiconductor substrate until the hole reaches the  
7 dielectric layer; and

8           a metal layer formed on the dielectric layer which holds a static capacity between  
9 the metal film of the via-hole and the metal layer.

1           13.   (Original) The RF passive circuit of Claim 12, further comprising:

2           a resistance element whose one terminal is electrically connected to the metal  
3 layer, and the other terminal to the via-hole.

1           14.   (Original) An RF amplifier comprising:

2           a semiconductor substrate;

3           a dielectric layer which is formed on a first main surface of the semiconductor  
4 substrate;

a via-hole which is formed by applying a metal film on an inside wall of a hole provided through a second main surface of the semiconductor substrate until the hole reaches the dielectric layer;

a metal layer formed on the dielectric layer which holds a static capacity between the metal film of the via-hole and the metal layer; and

a field effective transistor, mounted on the semiconductor substrate, which has a common gate circuit having a gate terminal electrically connected to the metal layer.

15. (Original) An RF amplifier comprising:

a semiconductor substrate;

a dielectric layer which is formed on a first main surface of the semiconductor substrate;

a via-hole which is formed by applying a metal film on an inside wall of a hole provided through a second main surface of the semiconductor substrate until the hole reaches the dielectric layer;

a metal layer formed on the dielectric layer which holds a static capacity between the metal film of the via-hole and the metal layer; and

a bipolar transistor, mounted on the semiconductor substrate, which has a common base circuit having a base terminal electrically connected to the metal layer.

16. (Original) An RF amplifier comprising:

a semiconductor substrate;

a dielectric layer which is formed on a first main surface of the semiconductor substrate;

a via-hole which is formed by applying a metal film on an inside wall of a hole provided through a second main surface of the semiconductor substrate until the hole reaches the dielectric layer;

a metal layer formed on the dielectric layer which holds a static capacity between the metal film of the via-hole and the metal layer;

a resistance element whose one terminal is electrically connected to the via-hole and the other terminal to the metal layer; and

a field effective transistor mounted on the semiconductor substrate whose source terminal is connected to the other terminal of the resistance element connected to the metal layer, so as to form a self bias circuit.

17. (Original) An RF passive circuit comprising:

a semiconductor substrate;

a via-hole which is formed by applying a metal film on an inside wall of a hole provided through the semiconductor substrate;

a dielectric layer which is formed on an inside wall of the via-hole; and

a wiring metal layer formed on the dielectric layer, which holds a static capacity between the via-hole.

18. (Original) The RF passive circuit of Claim 17, further comprising:

a resistance element whose one terminal is electrically connected to the metal film of the via-hole, and the other terminal to the wiring metal layer.

19. (Original) An RF amplifier comprising:

a semiconductor substrate;

3                   a via-hole which is formed by applying a metal film on an inside wall of a hole  
4   provided through the semiconductor substrate;  
5                   a dielectric layer which is formed on an inside wall of the via-hole;  
6                   a wiring metal layer formed on the dielectric layer, which holds a static capacity  
7   between the via-hole; and  
8                   a field effective transistor, mounted the semiconductor substrate, which has a  
9   common gate circuit having a gate terminal electrically connected to the wiring metal layer.

1           20.   (Original) An RF amplifier comprising:  
2                   a semiconductor substrate;  
3                   a via-hole which is formed by applying a metal film on an inside wall of a hole  
4   provided through the semiconductor substrate;  
5                   a dielectric layer which is formed on an inside wall of the via-hole;  
6                   a wiring metal layer formed on the dielectric layer, which holds a static capacity  
7   between the via-hole; and  
8                   a bipolar transistor, mounted on the semiconductor substrate, which has a  
9   common base circuit having a base terminal electrically connected to the wiring metal layer.

1           21.   (Original) An RF amplifier comprising:  
2                   a semiconductor substrate;  
3                   a via-hole which is formed by applying a metal film on an inside wall of a hole  
4   provided through the semiconductor substrate;  
5                   a dielectric layer which is formed on an inside wall of the via-hole;



6 a wiring metal layer formed on the dielectric layer, which holds a static capacity  
7 between the via-hole;

8 a resistance element whose one terminal is electrically connected to the metal film  
9 of the via-hole and the other terminal to the metal layer; and

10 a field effective transistor mounted the semiconductor substrate whose source  
11 terminal is connected to the other terminal of the resistance element connected to the metal layer,  
12 so as to form a self bias circuit.

1 22. (Original) An RF passive circuit comprising:

2 a semiconductor substrate;

3 a via-hole which is formed by applying a metal film on an inside wall of a hole  
4 provided through the semiconductor substrate;

5 a first dielectric layer which is formed on an inside wall of the via-hole;

6 a first wiring metal layer formed on the first dielectric layer which equivalently  
7 forms a first capacity element between the via-hole;

8 a second dielectric layer which is formed on the first wiring metal layer; and

9 a second wiring metal layer formed on the second dielectric layer which  
10 equivalently forms a second capacity element between the first wiring metal layer,

11 wherein the via-hole and the second wiring metal layer are electrically connected,  
12 and the sum of static capacity of the first capacity element and the second capacity element are  
13 held between the via-hole and the first wiring metal layer.

1           23.    (Original) The RF passive circuit of Claim 22, further comprising:  
2                   a resistance element whose terminal is electrically connected either to the second  
3 wiring metal layer or to the via-hole, and the other terminal to the first wiring metal layer.

1           24.    (Original) An RF amplifier comprising:  
2                   a semiconductor substrate;  
3                   a via-hole which is formed by applying a metal film on an inside wall of a hole  
4 provided through the semiconductor substrate;  
5                   a first dielectric layer which is formed on an inside wall of the via-hole;  
6                   a first wiring metal layer formed on the first dielectric layer which equivalently  
7 forms a first capacity element between the via-hole;  
8                   a second dielectric layer which is formed on the first wiring metal layer;  
9                   a second wiring metal layer formed on the second dielectric layer which  
10 equivalently forms a second capacity element between the first wiring metal layer,  
11                  the via-hole and the second wiring metal layer being electrically connected, and  
12 the sum of static capacity of the first capacity element and the second capacity element being  
13 held between the via-hole and the first wiring metal layer; and  
14                  a field effective transistor, mounted on the semiconductor substrate, which has a  
15 common gate circuit having a gate terminal electrically connected to the first wiring metal layer.

1           25.    (Original) An RF amplifier comprising:  
2                   a semiconductor substrate;  
3                   a via-hole which is formed by applying a metal film on an inside wall of a hole  
4 through the semiconductor substrate;

5           a first dielectric layer which is formed on an inside wall of the via-hole;  
6           a first wiring metal layer formed on the first dielectric layer which equivalently  
7 forms a first capacity element between the via-hole;  
8           a second dielectric layer which is formed on the first wiring metal layer;  
9           a second wiring metal layer formed on the second dielectric layer which  
10 equivalently forms a second capacity element between the first wiring metal layer,  
11          the via-hole and the second wiring metal layer being electrically connected, and  
12 the sum of static capacity of the first capacity element and the second capacity element being  
13 held between the via-hole and the first wiring metal layer; and  
14          a bipolar transistor, mounted on the semiconductor substrate, which has a  
15 common base circuit having a base terminal electrically connected to the first wiring metal layer.

1          26.   (Original) An RF amplifier comprising:

2           a semiconductor substrate;  
3           a via-hole which is formed by applying a metal film on an inside wall of a hole  
4 provided through the semiconductor substrate;  
5           a first dielectric layer which is formed on an inside wall of the via-hole;  
6           a first wiring metal layer formed on the first dielectric layer which equivalently  
7 forms a first capacity element between the via-hole;  
8           a second dielectric layer which is formed on the first wiring metal layer;  
9           a second wiring metal layer formed on the second dielectric layer which  
10 equivalently forms a second capacity element between the first wiring metal layer,

11                   the via-hole and the second wiring metal layer being electrically connected, and  
12   the sum of static capacity of the first capacity element and the second capacity element being  
13   held between the via-hole and the first wiring metal layer;  
14                   a resistance element whose one terminal is electrically connected either to the  
15   second wiring metal layer or to the via-hole, and the other terminal to the first wiring metal layer;  
16   and  
17                   a field effective transistor mounted on the semiconductor substrate whose source  
18   terminal is connected to the one terminal of the resistance element connected either to the second  
19   wiring metal layer or to the via-hole, so as to form a self bias circuit.